



Designation: D8287/D8287M – 22

Standard Test Method for Compressive Residual Strength Properties of Damaged Sandwich Composite Panels¹

This standard is issued under the fixed designation D8287/D8287M; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reappraisal. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reappraisal.

1. Scope

1.1 This test method covers compression residual strength properties of sandwich constructions that have been subjected to quasi-static indentation or drop-weight impact per Practice [D7766/D7766M](#).

NOTE 1—When used to determine the residual strength of drop-weight impacted plates, this test method is commonly referred to as the Sandwich Compression After Impact test method.

1.2 Several important test specimen parameters (for example, facesheet thickness, core thickness, and core density) are not mandated by this test method; however, repeatable results require that these parameters be specified and reported.

1.3 The method utilizes a flat, rectangular specimen, previously subjected to a damaging event, which is tested under edgewise compressive loading using a stabilization fixture.

1.4 The properties generated by this test method are highly dependent upon several factors, which include; specimen geometry, sandwich component materials and dimensions (facesheet, core, and adhesive), methods of fabrication, the type, size, and location of damage and boundary conditions. Thus, results are generally not scalable to other sandwich constructions, and are particular to the combination of geometric and physical conditions tested.

1.5 This test method can be used to test undamaged specimens, but care should be taken to prevent undesirable failure modes such as end crushing. Test Methods [C364](#) and [D7249/D7249M](#) are the recommended test methods for undamaged sandwich panel compression strength by edgewise compression or long beam flexure, respectively.

1.6 *Units*—The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system are not necessarily exact equivalents; therefore, to ensure conformance with the standard, each system shall be used independently of the other, and values from the two systems shall not be combined.

1.6.1 Within the text, the inch-pound units are shown in brackets.

1.7 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.8 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*²

[C364](#) Test Method for Edgewise Compressive Strength of Sandwich Constructions

[D792](#) Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement

[D883](#) Terminology Relating to Plastics

[D3171](#) Test Methods for Constituent Content of Composite Materials

[D3878](#) Terminology for Composite Materials

[D5229/D5229M](#) Test Method for Moisture Absorption Properties and Equilibrium Conditioning of Polymer Matrix Composite Materials

[D5687/D5687M](#) Guide for Preparation of Flat Composite Panels with Processing Guidelines for Specimen Preparation

[D7137](#) Test Method for Compressive Residual Strength Properties of Damaged Polymer Matrix Composite Plates

[D7249/D7249M](#) Test Method for Facesheet Properties of Sandwich Constructions by Long Beam Flexure

[D7766/D7766M](#) Practice for Damage Resistance Testing of Sandwich Constructions

[D8388/D8388M](#) Practice for Flexural Residual Strength

¹ This test method is under the jurisdiction of ASTM Committee [D30](#) on Composite Materials and is the direct responsibility of Subcommittee [D30.09](#) on Sandwich Construction.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.